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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,672	07/08/2003	Frank S. Geefay	10010586.4	9814

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EXAMINER

ZARNEKE, DAVID A

ART UNIT PAPER NUMBER

2829

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,672

Applicant(s)

GEEFAY ET AL.

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 11/4/04, with respect to the rejection of claim over Hyoudo et al. under 35 USC § 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hyoudo et al under 35 USC § 103.

The examiner agrees that Hyoudo fails to specifically teach how the gasket is formed in the first wafer and therefore removes the previous rejection, but a new rejection of the claims using the same reference is presented below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Hyoudo et al., US Patent 6,285,067.

Hyoudo et al. (figure 4B) discloses a method for manufacturing a wafer-level package, comprising:

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providing a first wafer (31a) and a second wafer (21);
forming a pad (portion of 21 covered by 41) on the second wafer, the pad substantially matching a gasket (41) of the first wafer;
interposing bonding material (3, 40+ & 3, 7+) between the gasket and the pad;
and
bonding the gasket to the pad with the bonding material to create a hermetically sealed environment between the first and second wafers (3, 40+).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hyoudo et al., US Patent 6,285,067.

Hyoudo et al. (figure 4B) discloses a method for manufacturing a wafer-level package, comprising:

- providing a first wafer (31a) and a second wafer (21);
- removing a portion from the first wafer to form a gasket (41);
- forming a pad (portion of 21 covered by 41) on the second wafer, the pad substantially matching the gasket;
- interposing bonding material (3, 40+ & 3, 7+) between the gasket and the pad;
- and
- bonding the gasket to the pad with the bonding material to create a hermetically sealed environment between the first and second wafers (3, 40+).

Regarding the limitation of removing a portion from the first wafer to form a gasket, while Hyoudo fails to specifically teach that a portion is removed, as opposed to

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the first wafer being formed with the portion missing, the removing of a portion to form a gasket, as opposed to any other method of forming the gasket, would have been obvious to one of ordinary skill in the art because it is merely an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

As to claim 2, Hyoudo teaches the first wafer to be made of silicon (5, 5+).

Regarding claims 3 and 4, while Hyoudo fails to teach the width of the gasket, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the gasket width through routine experimentation (MPEP 2144.05).

With respect to claims 5 and 6, while Hyoudo fails to teach the where the bonding material is deposited, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the placement of the bonding material through routine experimentation (MPEP 2144.05).

In re claims 7 and 8, while Hyoudo fails to teach the bonding material to formed of a conductive material, it would have been obvious to one of ordinary skill in the art to substitute a conductive bonding material for a non-conductive bonding material because they are more than well known equivalents used in the bonding of two substrates together (claim 7).

Further, gold, gold-tin, tin-lead, and palladium-tin are commonly used conductive bonding materials (claim 8).

The substitution of one known equivalent technique for another may be obvious even if the prior art does not expressly suggest the substitution (Ex parte Novak 16

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USPQ 2d 2041 (BPAI 1989); In re Mostovych 144 USPQ 38 (CCPA 1964); In re Leshin 125 USPQ 416 (CCPA 1960); Graver Tank & Manufacturing Co. V. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

Regarding claims 9 and 10, Hyoudo teaches the bonding material includes a non-conductive bonding material, the non-conductive material being a glass (3, 10+).

As to claim 11, while Hyoudo fails to teach the inclusion of an adhesion promoter with the bonding material, the use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07). Adhesion promoters are conventionally added to bonding materials to assist the bonding material in forming a strong bond.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hyoudo et al., US Patent 6,285,067.

Hyoudo et al. (figure 4B) discloses a method for manufacturing a wafer-level package, comprising:

- providing a first wafer (31a) and a second wafer (21);
- removing a portion from the first wafer to form a gasket (41);
- forming a pad (portion of 21 covered by 41) on the second wafer, the pad substantially matching the gasket; and
- bonding the gasket to the second wafer to create a hermetically sealed environment between the first and second wafers (3, 40+).

Regarding the limitation of removing a portion from the first wafer to form a gasket, while Hyoudo fails to specifically teach that a portion is removed, as opposed to

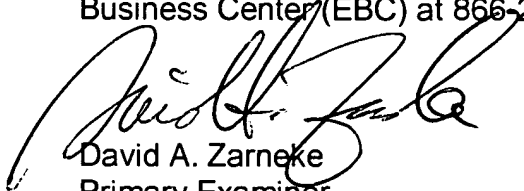
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the first wafer being formed with the portion missing, the removing of a portion to form a gasket, as opposed to any other method of forming the gasket, would have been obvious to one of ordinary skill in the art because it is merely an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

Conclusion

Any inquiry concerning this communication from the examiner should be directed to David A. Zarneke at (571)-272-1937. The examiner can normally be reached on M-F 7:30 AM-6 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (571)-272-2034. The fax phone number for the organization where this application is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David A. Zarneke
Primary Examiner
January 11, 2005